

REMARKS

The Office Action dated April 23, 2004 has been received and carefully studied. An RCE is filed herewith.

The Examiner rejects claims 2-6 under 35 U.S.C. §112, first and second paragraphs. The Examiner states that it is unclear from the claims whether the drying step removes all of the solvent, and that the claims contain subject matter not adequately described in the specification, since there is no description of whether the drying step removes all the solvent nitromethane. The Examiner states that there does not appear to be any water in the composition, or anything else that would be removed by drying.

Claim 2 now has been amended to recite that the nitroalkane is removed by drying. Support for the amendment can be found at page 11, lines 9-13 of the specification. It is believed that the amendment overcomes the rejections.

The Examiner newly rejects claims 2-6 under 35 U.S.C. §103(a) as being unpatentable over Bernardy in view of Swotinsky et al., and further in view of Klug and Donoho, and further in view of Crawford et al., Minnick et al. and Machacek. The Examiner states that Bernardy teaches pyrotechnics of color salts and a nitrocellulose binder, and considers it obvious to substitute a similar nitrocellulose binder containing nitro-compounds in view of Swotinsky et al. King and Donoho are cited for their disclosures of nitrocellulose gel as a binder. Crawford, Minnick and Machacek are cited for their disclosure of nitrocellulose gel

including nitrocellulose and nitromethane (a nitroalkane).

The rejection is respectfully traversed.

Applicants respectfully submit that the cited references, alone or in combination, do not suggest the pyrotechnic composition as presently claimed, from which a substantial part of the nitroalkane solvent, e.g., nitromethane, is removed by drying. As taught in the instant specification, the invention remarkably simplifies the overall manufacturing process, while maintaining the color producing effects of the resulting pyrotechnic composition as comparable to those of the conventional composition.

These advantageous effects are also clear from the Declaration attached hereto. The Declaration demonstrates that the pyrotechnic composition of the present invention is particularly suitable for use in pyrotechnics when it is manufactured by preparing a gel composition comprising nitrocellulose and a nitroalkane and then drying the gel to remove the nitroalkane solvent therefrom for curing, as taught and claimed in the instant application. These effects as well as the features of the present invention are not suggested by the references cited in the outstanding official action.

Bernardy teaches pyrotechnics of color salts and a nitrocellulose binder. However, use of nitrocellulose and a nitroalkane in combination to form an intermediate gel composition is not suggested.

Swotinsky et al. discloses the use of nitrocellulose and nitro esters. However, nitro esters are clearly different from nitroalkanes.

Applicant respectfully contends that Klug does not teach the use of nitrocellulose gel as a binder. Klug discloses a gelled fuel composition comprising a crosslinked olefin-modified hydroxyalkyl cellulose and a lower aliphatic alcohol (lines 25 to 36, column 1 of the '877 patent). It is very clear that the crosslinked olefin-modified hydroxyalkyl cellulose of the patent does not include nitrocellulose therein because Klug explicitly teaches away the use of nitrocellulose (see lines 12 to 14, column 1 of the '877 patent). Accordingly, Klug does not teach the use of nitrocellulose, let alone the use of nitroalkanes in combination with nitrocellulose as claimed in the instant application.

Donoho discloses the use of nitrocellulose varnish in Example 2 of the '573 patent. However, the solvent of the varnish is unknown. Accordingly, Donoho does not suggest the use of gel composition comprising nitrocellulose and a nitroalkane in preparing the pyrotechnic composition as presently claimed from which a substantial part of the nitroalkane is removed to cure the pyrotechnics in a desired shape.

Crawford discloses a nitrocellulose lacquer. However, it only relates to a silica flatting agent and therefore pyrotechnics are not contemplated. Accordingly, Crawford does


not suggest the use of gel composition comprising nitrocellulose and a nitroalkane in preparing pyrotechnics as presently claimed from which a substantial part of the nitroalkane is removed to cure the pyrotechnics in a desired shape.

Minnick et al., discloses the use of a gel comprising nitrocellulose and nitroparaffins such as nitromethane in preparing a slurry explosive composition in a form of stable dispersion in water. However, the slurry explosive composition of the '444 patent is quite different from the pyrotechnic composition of the present invention in that the explosive composition of the '444 patent should have to be highly explosive, whereas such a characteristic is rather undesirable for the pyrotechnic composition as presently claimed. Indeed, in the '444 patent, nitroparaffins are used as a fuel of the explosive composition and therefore are not removed from the composition in order to keep it highly explosive, whereas nitroalkanes are removed in the present invention.

Similarly, Machacek does not disclose the removal of nitromethane since the invention also relates to explosives.

Reconsideration and allowance are respectfully requested in view of the foregoing.

Respectfully submitted,


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